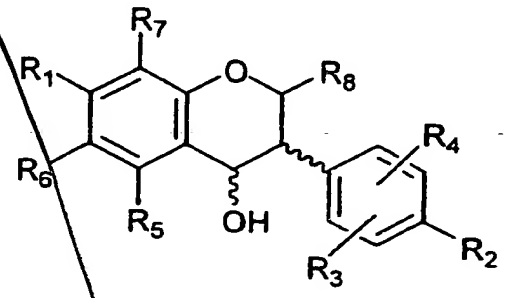
The claims defining the invention are as follows:

1. A method for the preparation of a compound of formula II



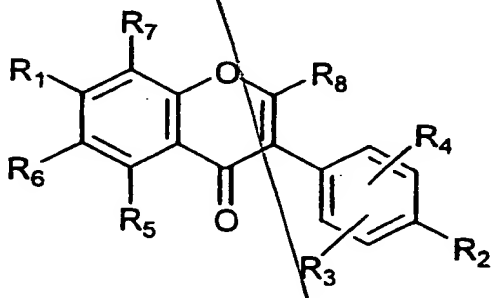
(II)

wherein

R_1, R_2, R_3, R_4, R_5, R_6, R_7 and R_8 are independently hydrogen, hydroxy, OR_9, $OC(O)R_9$, $OS(O)R_9$, alkyl, haloalkyl, aryl, arylalkyl, thio, alkylthio, amino, alkylamino, dialkylamino, nitro, or halo, and

R_9 is alkyl, haloalkyl, aryl, arylalkyl or alkylaryl,

comprising the step of hydrogenating a compound of formula I



(I)

wherein

R_1, R_2, R_3, R_4, R_5, R_6, R_7, R_8 and R_9 are as defined above

to prepare a compound of formula II.

2. A method of claim 1, wherein the hydrogenation step is performed with hydrogen in the presence of a reduction catalyst and a solvent.

3. A method of claim 2, wherein the reduction catalyst comprises palladium, palladium hydroxide, platinum or platinum oxide.

4. A method of claim 3, wherein the reduction catalyst is palladium on activated carbon, palladium on barium sulfate or platinum(IV)oxide.

5. A method of claim 4, wherein the reduction catalyst is palladium on activated carbon (1% Pd to 10% Pd).

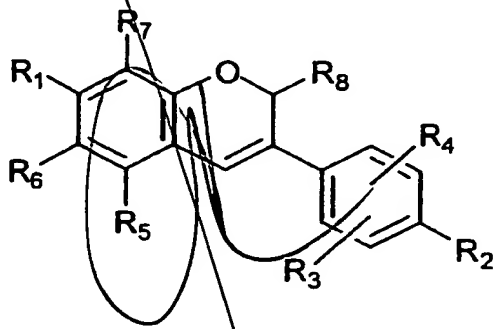
6. A method of claim 5, wherein the reduction catalyst is about 5% palladium on activated carbon.

7. A method of claim 2, wherein the solvent is a C_1-C_8 alcohol, an alkyl acetate or a C_1-C_3 carboxylic acid.

8. A method of claim 7, wherein the solvent is a methanol, ethanol or C_1-C_6 alkyl acetate.

9. A method of claim 8, wherein the solvent is absolute methanol or absolute ethanol.

10. A method of claim 1 which further comprises the step of dehydrating and optionally deprotecting or transforming a compound of formula II to prepare a compound of formula III



(III)

R_1, R_2, R_3, R_4, R_5, R_6, R_7 and R_8 are independently hydrogen, hydroxy, OR_9, $OC(O)R_9$, $OS(O)R_9$, alkyl, haloalkyl, aryl, arylalkyl, thio, alkylthio, amino, alkylamino, dialkylamino, nitro, or halo, and

R_9 is alkyl, haloalkyl, aryl, arylalkyl or alkylaryl.

11. A method of any one of claims 1 to 10, wherein the compounds of formula I, II or III have the following substituents

R_1 is hydroxy, OR_9 or $OC(O)R_9$,

R_2, R_3, R_4, R_5, R_6 and R_7 are independently hydrogen, hydroxy, OR_9, $OC(O)R_9$, alkyl, aryl or arylalkyl,

R_8 is hydrogen, and

R_9 is methyl, ethyl, propyl, isopropyl or trifluoromethyl.

12. A method of claim 11, wherein the compounds of formula I, II or III have the following substituents

R_1 is hydroxy, OR_9 or $OC(O)R_9$,

R_2, R_3, R_4, R_5 and R_7 are independently hydrogen, hydroxy, OR_9, $OC(O)R_9$, alkyl, aryl or arylalkyl,

R_6 and R_8 are hydrogen, and

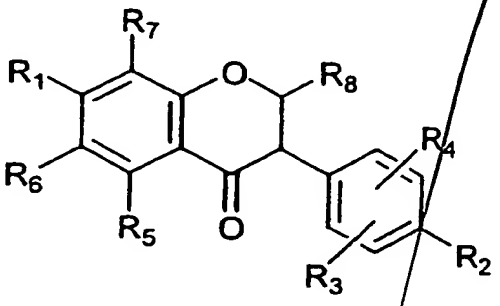
R_9 is methyl.

13. A method of any one of claims 1 to 12, wherein the compound of formula I is 4',7-diacetoxyisoflavone (daidzein diacetate) or 7-acetoxy-4'-methoxyisoflavone.

14. A method of any one of claims 1 to 13, wherein the compound of formula II is 4',7-diacetoxyisoflavan-4-ol (tetrahydrodaidzein diacetate) or 7-acetoxy-4'-methoxyisoflavan-4-ol.

15. A method of any one of claims 10 to 14, wherein and the compound of formula III is 4',7-diacetoxyisoflav-3-ene (dehydroequol diacetate), 4',7-dihydroxyisoflav-3-ene (dehydroequol), 7-acetoxy-4'-methoxyisoflav-3-ene or 7-hydroxy-4'-methoxyisoflav-3-ene.

16. A method for the preparation of a compound of formula IV



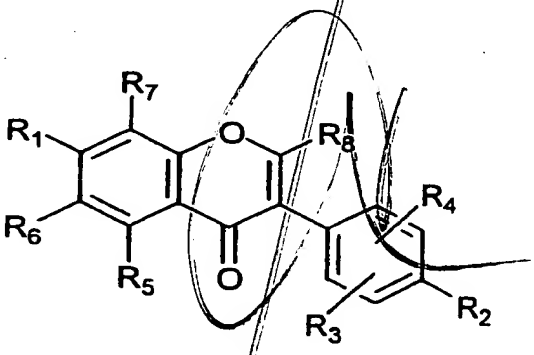
(IV)

wherein

R_1, R_2, R_3, R_4, R_5, R_6, R_7 and R_8 are independently hydrogen, hydroxy, OR_9, $OC(O)R_9$, $OS(O)R_9$, alkyl, haloalkyl, aryl, arylalkyl, thio, alkylthio, amino, alkylamino, dialkylamino, nitro, or halo, and

R_9 is alkyl, haloalkyl, aryl, arylalkyl or alkylaryl,

comprising the step of hydrogenating a compound of formula I



(I)

wherein

R_1, R_2, R_3, R_4, R_5, R_6, R_7, R_8 and R_9 are as defined above

to prepare a compound of formula IV.

17. A method of claim 16, wherein the hydrogenation step is performed with hydrogen in the presence of a reduction catalyst and a solvent.

18. A method of claim 17, wherein the reduction catalyst comprises palladium, palladium hydroxide, platinum or platinum(IV)oxide.

19. A method of claim 18, wherein the reduction catalyst is palladium on activated carbon (1% Pd to 10% Pd).

20. A method of claim 19, wherein the reduction catalyst is about 5% palladium on activated carbon.

21. A method of claim 17, wherein the solvent is a C_1-C_8 alcohol, a C_1-C_6 alkyl acetate or a C_1-C_3 carboxylic acid.

22. A method of claim 21, wherein the solvent is absolute methanol, ethanol or ethyl acetate.

23. A method of any one of claims 16 to 22, wherein the compound of formula I is 4',7-diacetoxyisoflavone (daidzein diacetate) or 7-acetoxy-4'-methoxyisoflavone.

24. A method of any one of claims 16 to 22, wherein the compound of formula IV has the following substituents

R_1 is hydroxy, OR_9 or $OC(O)R_9$,

R_2, R_3, R_4, R_5, R_6 and R_7 are independently hydrogen, hydroxy, OR_9, $OC(O)R_9$, alkyl, aryl or arylalkyl,

R_8 is hydrogen, and

R_9 is methyl, ethyl, propyl, isopropyl or trifluoromethyl.

25. A method of claim 24, wherein the compound of formula IV has the following substituents

R_1 is hydroxy, OR_9 or $OC(O)R_9$,

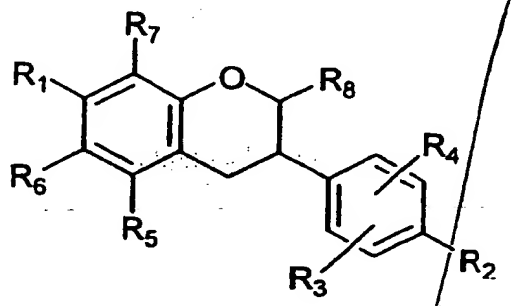
R_2, R_3, R_4, R_5 and R_7 are independently hydrogen, hydroxy, OR_9, $OC(O)R_9$, alkyl, aryl or arylalkyl,

R_6 and R_8 are hydrogen, and

R_9 is methyl.

26. A method of claim 25, wherein the compound of formula IV is 4',7-diacetoxyisoflavan-4-one (diacetoxydihydrodaidzein) or 4',7-dihydroxyisoflavan-4-one (dihydrodaidzein).

27. A method for the preparation of a compound of formula V



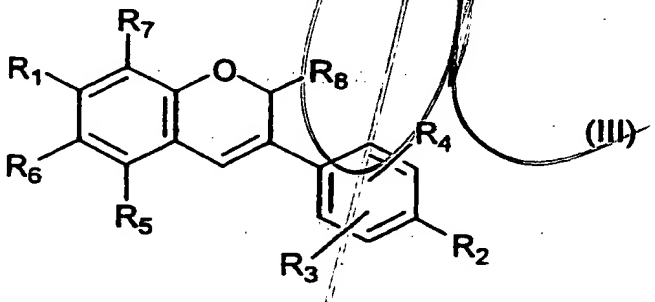
(V)

wherein

R_1, R_2, R_3, R_4, R_5, R_6, R_7 and R_8 are independently hydrogen, hydroxy, OR_9, $OC(O)R_9$, $OS(O)R_9$, alkyl, haloalkyl, aryl, arylalkyl, thio, alkylthio, amino, alkylamino, dialkylamino, nitro, or halo, and

R_9 is alkyl, haloalkyl, aryl, arylalkyl or alkylaryl,

comprising the step of hydrogenating a compound of formula III



(III)

wherein

R_1, R_2, R_3, R_4, R_5, R_6, R_7, R_8 and R_9 are as defined above

to prepare a compound of formula V.

28. A method of claim 27, wherein the hydrogenation step is performed with hydrogen in the presence of a reduction catalyst and a solvent.

29. A method of claim 28, wherein the reduction catalyst comprises palladium, palladium hydroxide, platinum or platinum(IV)oxide.

30. A method of claim 29, wherein the reduction catalyst is palladium on activated carbon (1% Pd to 10% Pd).

31. A method of claim 30, wherein the reduction catalyst is about 5% palladium on activated carbon.

32. A method of claim 28, wherein the solvent is a C_1-C_8 alcohol, a C_1-C_6 alkyl acetate or a C_1-C_3 carboxylic acid.

33. A method of claim 32, wherein the solvent is a methanol, ethanol or ethyl acetate.

34. A method of claim 33, wherein the solvent is ethyl acetate.

35. A method of any one of claims 27 to 34, wherein and the compound of formula III is 4',7-diacetoxyisoflav-3-ene (dehydroequol diacetate), 4',7-dihydroxyisoflav-3-ene (dehydroequol), 7-acetoxy-4'-methoxyisoflav-3-ene or 7-hydroxy-4'-methoxyisoflav-3-ene.

36. A method of any one of claims 27 to 34, wherein the compound of formula V has the following substituents

R_1 is hydroxy, OR_9 or $OC(O)R_9$,

R_2, R_3, R_4, R_5, R_6 and R_7 are independently hydrogen, hydroxy, OR_9, $OC(O)R_9$, alkyl, aryl or arylalkyl,

R_8 is hydrogen, and

R_9 is methyl, ethyl, propyl, isopropyl or trifluoromethyl.

37. A method of claim 36, wherein the compound of formula V has the following substituents

R_1 is hydroxy, OR_9 or $OC(O)R_9$,

R_2, R_3, R_4, R_5 and R_7 are independently hydrogen, hydroxy, OR_9, $OC(O)R_9$, alkyl, aryl or arylalkyl,

R_6 and R_8 are hydrogen, and

R_9 is methyl.

38. A method of claim 37, wherein the compound of formula V is 4',7-diacetoxyisoflavan (equol diacetate) or 4',7-dihydroxyisoflavan (equol).

39. Methods substantially as hereinbefore described especially with reference to the Examples.

40. Compounds of formula II or formula III or formula IV or formula V when prepared by a method of any preceding claim.

41. A compound of the formulae II, III, IV or V,

wherein

R_1 is hydroxy, OR_9, $OC(O)R_9$, thio, alkylthio, or halo,

R_2, R_3, R_4, R_5, R_6, R_7 and R_8 are independently hydrogen, hydroxy, OR_9, $OC(O)R_9$, $OS(O)R_9$, alkyl, aryl, thio, alkylthio or halo, and

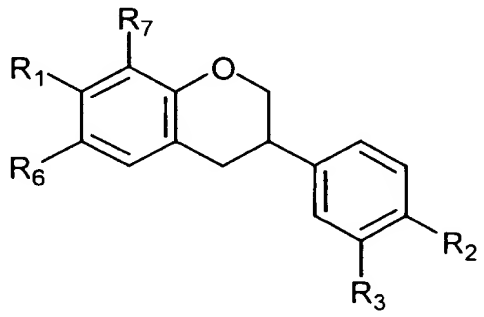
R_9 is alkyl, fluoroalkyl or arylalkyl

with the proviso that

at least one of R_5, R_6 and R_7 is not hydrogen, or

when R_5, R_6 and R_7 are all hydrogen, then R_3 is hydroxy, OR_9, $OC(O)R_9$, $OS(O)R_9$, alkyl, aryl, thio, alkylthio or halo,

provided that compounds of the formula



wherein

ART 34 AMDT

R_1 is hydroxy or acetoxy,

R_2 is hydrogen, hydroxy, acetoxy, methoxy, methyl, isopropyl or halo,

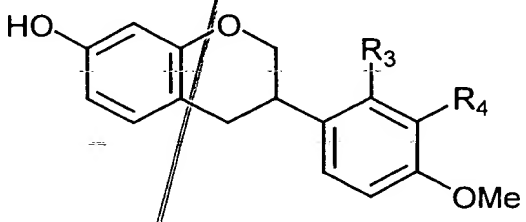
R_3 is hydrogen, methoxy, methyl, halo or trifluoromethyl,

R_6 is hydrogen, hydroxy or acetoxy, and

R_7 is hydrogen, hydroxy, methyl or methoxy

are specifically excluded,

provided that compounds of the formula



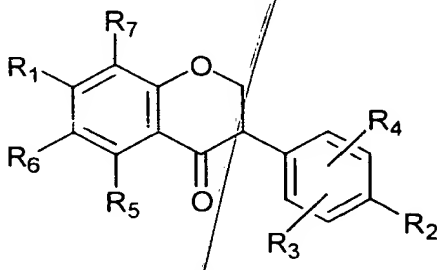
wherein

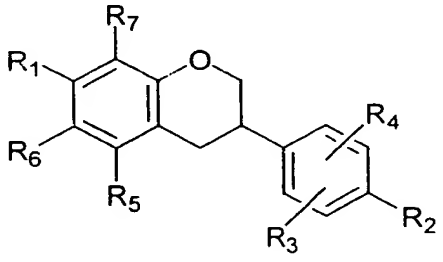
R_3 is hydroxy or methoxy, and

R_4 is hydrogen or methoxy

are specifically excluded,

provided that compounds of the formulae





wherein

R_1 is hydroxy, methoxy, ethoxy, methylthio or halogen, and

R_2, R_3 R_4, R_5, R_6, and R_7 are independently hydrogen, hydroxy, methoxy, ethoxy, methylthio or halogen,

are specifically excluded, and

provided that the compounds
4',7-Dihydroxy-3',5'-dimethoxyisoflavan-4-one
4',5-Dimethoxy-7-hydroxy-8-methylisoflavan-4-one
2',7-Dihydroxy-4',8-dimethoxyisoflavan-3-ene
are specifically excluded.

42. A compound of claim 41,
wherein
R_1 is hydroxy, OR_9 or $OC(O)R_9$,
R_2 and R_3 are independently hydrogen, hydroxy, OR_9 or $OC(O)R_9$,
R_4, R_5, R_6, and R_8 are hydrogen,
R_7 is hydroxy, OR_9, $OC(O)R_9$, alkyl, aryl or halo, and
R_9 is methyl, ethyl, propyl, isopropyl, trifluoromethyl or benzyl.

43. A compound of claim 41,
wherein
R_1 is hydroxy, OR_9 or $OC(O)R_9$,
R_2 and R_3 are independently hydrogen, hydroxy, OR_9 or $OC(O)R_9$,
R_5 is OR_9, $OC(O)R_9$, alkyl, aryl or halo,
R_4, R_6, R_7, and R_8 are hydrogen, and
R_9 is methyl, ethyl, propyl, isopropyl, trifluoromethyl or benzyl.

44. A compound of formula I selected from the group consisting of:
4',7,8-Triacetoxyisoflavone
7,8-Diacetoxy-4'-methoxyisoflavone
4',7-Diacetoxy-8-methylisoflavone
3',7-Diacetoxy-8-methylisoflavone
7-Acetoxy-4'-methoxy-8-methylisoflavone
4',7-Diacetoxy-3'-methoxy-8-methylisoflavone
4',5,7-Triacetoxyisoflavone

ART 34 AMDT

45. A compound of formula II selected from the group consisting of:

4',7,8-Triacetoxyisoflavan-4-ol

7,8-Diacetoxy-4-methoxyisoflavan-4-ol

4',7-Diacetoxy-8-methylisoflavan-4-ol

3',7-Diacetoxy-8-methylisoflavan-4-ol

7-Acetoxy-4'-methoxy-8-methylisoflavan-4-ol

4',7-Diacetoxy-3'-methoxy-8-methylisoflavan-4-ol

4',5,7-Triacetoxyisoflavan-4-ol

4',7,8-Trihydroxyisoflavan-4-ol

7,8-Dihydroxy-4-methoxyisoflavan-4-ol

4',7-Dihydroxy-8-methylisoflavan-4-ol

3',7-Dihydroxy-8-methylisoflavan-4-ol

7-Hydroxy-4'-methoxy-8-methylisoflavan-4-ol

4',7-Dihydroxy-3'-methoxy-8-methylisoflavan-4-ol

4',5,7-Trihydroxyisoflavan-4-ol

46. A compound of formula III selected from the group consisting of:

4',7,8-Triacetoxydehydroequol (4',7,8-Triacetoxyisoflav-3-ene)

7,8-Diacetoxy-4-methoxydehydroequol (7,8-Diacetoxy-4-methoxyisoflav-3-ene)

4',7-Diacetoxy-8-methylisoflav-3-ene

3',7-Diacetoxy-8-methylisoflav-3-ene

7-Acetoxy-4'-methoxy-8-methylisoflav-3-ene

4',7-Diacetoxy-3'-methoxy-8-methylisoflav-3-ene

4',5,7-Triacetoxyisoflav-3-ene

Isoflav-3-ene-4',7,8-triol

4'-Methoxyisoflav-3-ene-7,8-diol

8-Methylisoflav-3-ene-4',7-diol

8-Methylisoflav-3-ene-3',7-diol

4'-Methoxy-8-methylisoflav-3-ene-7-ol

3'-Methoxy-8-methylisoflav-3-ene-4',7-diol

Isoflav-3-ene-4',5,7-triol

add
A3